Series B900-N and B900SW-N Manifold Mounted Electric Guns

For use with DuraBlue Series Melters

Customer Product Manual

Part 1041221B

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NORDSON CORPORATION • DULUTH, GEORGIA • USA
www.nordson.com

For CE Declaration, refer to melter manual.

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Series B900-N and B900SW-N Manifold Mounted Electric Guns

Safety

Read this section before using the equipment. This section contains recommendations and practices applicable to the safe installation, operation, and maintenance (hereafter referred to as "use") of the product described in this document (hereafter referred to as "equipment"). Additional safety information, in the form of task-specific safety alert messages, appears as appropriate throughout this document.

WARNING: Failure to follow the safety messages, recommendations, and hazard avoidance procedures provided in this document can result in personal injury, including death, or damage to equipment or property.

Safety Alert Symbols

The following safety alert symbol and signal words are used throughout this document to alert the reader to personal safety hazards or to identify conditions that may result in damage to equipment or property. Comply with all safety information that follows the signal word.

WARNING: Indicates a potentially hazardous situation that, if not avoided, can result in serious personal injury, including death.

CAUTION: Indicates a potentially hazardous situation that, if not avoided, can result in minor or moderate personal injury.

CAUTION: (Used without the safety alert symbol) Indicates a potentially hazardous situation that, if not avoided, can result in damage to equipment or property.

Responsibilities of the Equipment Owner

Equipment owners are responsible for managing safety information, ensuring that all instructions and regulatory requirements for use of the equipment are met, and for qualifying all potential users.

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Safety Information

- Research and evaluate safety information from all applicable sources, including the owner-specific safety policy, best industry practices, governing regulations, material manufacturer's product information, and this document.
- Make safety information available to equipment users in accordance with governing regulations. Contact the authority having jurisdiction for information.
- Maintain safety information, including the safety labels affixed to the equipment, in readable condition.

Instructions, Requirements, and Standards

- Ensure that the equipment is used in accordance with the information provided in this document, governing codes and regulations, and best industry practices.
- If applicable, receive approval from your facility's engineering or safety department, or other similar function within your organization, before installing or operating the equipment for the first time.
- Provide appropriate emergency and first aid equipment.
- Conduct safety inspections to ensure required practices are being followed.
- Re-evaluate safety practices and procedures whenever changes are made to the process or equipment.

User Qualifications

Equipment owners are responsible for ensuring that users:

- receive safety training appropriate to their job function as directed by governing regulations and best industry practices
- are familiar with the equipment owner's safety and accident prevention policies and procedures
- receive, equipment- and task-specific training from another qualified individual

  NOTE: Nordson can provide equipment-specific installation, operation, and maintenance training. Contact your Nordson representative for information
- possess industry- and trade-specific skills and a level of experience appropriate to their job function
- are physically capable of performing their job function and are not under the influence of any substance that degrades their mental capacity or physical capabilities

Applicable Industry Safety Practices

The following safety practices apply to the use of the equipment in the manner described in this document. The information provided here is not meant to include all possible safety practices, but represents the best safety practices for equipment of similar hazard potential used in similar industries.

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Intended Use of the Equipment

- Use the equipment only for the purposes described and within the limits specified in this document.
- Do not modify the equipment.
- Do not use incompatible materials or unapproved auxiliary devices. Contact your Nordson representative if you have any questions on material compatibility or the use of non-standard auxiliary devices.

Instructions and Safety Messages

- Read and follow the instructions provided in this document and other referenced documents.
- Familiarize yourself with the location and meaning of the safety warning labels and tags affixed to the equipment. Refer to *Safety Labels and Tags* at the end of this section.
- If you are unsure of how to use the equipment, contact your Nordson representative for assistance.

Installation Practices

- Install the equipment in accordance with the instructions provided in this document and in the documentation provided with auxiliary devices.
- Ensure that the equipment is rated for the environment in which it will be used and that the processing characteristics of the material will not create a hazardous environment. Refer to the Material Safety Data Sheet (MSDS) for the material.
- If the required installation configuration does not match the installation instructions, contact your Nordson representative for assistance.
- Position the equipment for safe operation. Observe the requirements for clearance between the equipment and other objects.
- Install lockable power disconnects to isolate the equipment and all independently powered auxiliary devices from their power sources.

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Installation Practices (contd)

- Properly ground all equipment. Contact your local building code enforcement agency for specific requirements.
- Ensure that fuses of the correct type and rating are installed in fused equipment.
- Contact the authority having jurisdiction to determine the requirement for installation permits or inspections.

Operating Practices

- Familiarize yourself with the location and operation of all safety devices and indicators.
- Confirm that the equipment, including all safety devices (guards, interlocks, etc.), is in good working order and that the required environmental conditions exist.
- Use the personal protective equipment (PPE) specified for each task. Refer to *Equipment Safety Information* or the material manufacturer's instructions and MSDS for PPE requirements.
- Do not use equipment that is malfunctioning or shows signs of a potential malfunction.

Maintenance and Repair Practices

- Perform scheduled maintenance activities at the intervals described in this document.
- Relieve system hydraulic and pneumatic pressure before servicing the equipment.
- De-energize the equipment and all auxiliary devices before servicing the equipment.
- Use only new factory-authorized refurbished or replacement parts.
- Read and comply with the manufacturer's instructions and the MSDS supplied with equipment cleaning compounds.

  NOTE: MSDSs for cleaning compounds that are sold by Nordson are available at www.nordson.com or by calling your Nordson representative.

- Confirm the correct operation of all safety devices before placing the equipment back into operation.
- Dispose of waste cleaning compounds and residual process materials according to governing regulations. Refer to the applicable MSDS or contact the authority having jurisdiction for information.
- Keep equipment safety warning labels clean. Replace worn or damaged labels.

Equipment Safety Information

This equipment safety information is applicable to the following types of Nordson equipment:

- hot melt and cold adhesive application equipment and all related accessories
- pattern controllers, timers, detection and verification systems, and all other optional process control devices

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Equipment Shutdown

To safely complete many of the procedures described in this document, the equipment must first be shut down. The level of shut down required varies by the type of equipment in use and the procedure being completed.
If required, shut down instructions are specified at the start of the procedure. The levels of shut down are:

Relieving System Hydraulic Pressure

Completely relieve system hydraulic pressure before breaking any hydraulic connection or seal. Refer to the melter-specific product manual for instructions on relieving system hydraulic pressure.

De-energizing the System

Isolate the system (melter, hoses, guns, and optional devices) from all power sources before accessing any unprotected high-voltage wiring or connection point.

1. Turn off the equipment and all auxiliary devices connected to the equipment (system).
2. To prevent the equipment from being accidentally energized, lock and tag the disconnect switch(es) or circuit breaker(s) that provide input electrical power to the equipment and optional devices.

   NOTE: Government regulations and industry standards dictate specific requirements for the isolation of hazardous energy sources. Refer to the appropriate regulation or standard.

Disabling the Guns

All electrical or mechanical devices that provide an activation signal to the guns, gun solenoid valve(s), or the melter pump must be disabled before work can be performed on or around a gun that is connected to a pressurized system.

1. Turn off or disconnect the gun triggering device (pattern controller, timer, PLC, etc.).
2. Disconnect the input signal wiring to the gun solenoid valve(s).
3. Reduce the air pressure to the gun solenoid valve(s) to zero; then relieve the residual air pressure between the regulator and the gun.

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General Safety Warnings and Cautions

Table 1 contains the general safety warnings and cautions that apply to Nordson hot melt and cold adhesive equipment. Review the table and carefully read all of the warnings or cautions that apply to the type of equipment described in this manual.

Equipment types are designated in Table 1 as follows:

HM = Hot melt (melters, hoses, guns, etc.)

PC = Process control

CA = Cold adhesive (dispensing pumps, pressurized container, and guns)

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Table 1 General Safety Warnings and Cautions

Equipment Type	Warnings and Cautions
HM	**WARNING:** Hazardous vapors! Before processing any polyurethane reactive (PUR) hot melt or solvent-based material through a compatible Nordson melter, read and comply with the material's MSDS. Ensure that the material's processing temperature and flashpoints will not be exceeded and that all requirements for safe handling, ventilation, first aid, and personal protective equipment are met. Failure to comply with MSDS requirements can cause personal injury, including death.
HM	**WARNING:** Reactive material! Never clean any aluminum component or flush Nordson equipment with halogenated hydrocarbon fluids. Nordson melters and guns contain aluminum components that may react violently with halogenated hydrocarbons. The use of halogenated hydrocarbon compounds in Nordson equipment can cause personal injury, including death.
HM, CA	**WARNING:** System pressurized! Relieve system hydraulic pressure before breaking any hydraulic connection or seal. Failure to relieve the system hydraulic pressure can result in the uncontrolled release of hot melt or cold adhesive, causing personal injury.
HM	**WARNING:** Molten material! Wear eye or face protection, clothing that protects exposed skin, and heat-protective gloves when servicing equipment that contains molten hot melt. Even when solidified, hot melt can still cause burns. Failure to wear appropriate personal protective equipment can result in personal injury.
HM, PC	**WARNING:** Equipment starts automatically! Remote triggering devices are used to control automatic hot melt guns. Before working on or near an operating gun, disable the gun's triggering device and remove the air supply to the gun's solenoid valve(s). Failure to disable the gun's triggering device and remove the supply of air to the solenoid valve(s) can result in personal injury.

Continued...

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General Safety Warnings and Cautions (contd)

Table 1 General Safety Warnings and Cautions *(contd)*

Equipment Type	Warnings and Cautions
HM, CA, PC	**WARNING:** Risk of electrocution! Even when switched off and electrically isolated at the disconnect switch or circuit breaker, the equipment may still be connected to energized auxiliary devices. De-energize and electrically isolate all auxiliary devices before servicing the equipment. Failure to properly isolate electrical power to auxiliary equipment before servicing the equipment can result in personal injury, including death.
HM, CA, PC	**WARNING:** Risk of fire or explosion! Nordson adhesive equipment is not rated for use in explosive environments and should not be used with solvent-based adhesives that can create an explosive atmosphere when processed. Refer to the MSDS for the adhesive to determine its processing characteristics and limitations. The use of incompatible solvent-based adhesives or the improper processing of solvent-based adhesives can result in personal injury, including death.
HM, CA, PC	**WARNING:** Allow only personnel with appropriate training and experience to operate or service the equipment. The use of untrained or inexperienced personnel to operate or service the equipment can result in injury, including death, to themselves and others and can damage to the equipment.

Continued...

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Equipment Type	Warnings and Cautions
HM	**CAUTION:** Hot surfaces! Avoid contact with the hot metal surfaces of guns, hoses, and certain components of the melter. If contact can not be avoided, wear heat-protective gloves and clothing when working around heated equipment. Failure to avoid contact with hot metal surfaces can result in personal injury.
HM	**CAUTION:** Some Nordson melters are specifically designed to process polyurethane reactive (PUR) hot melt. Attempting to process PUR in equipment not specifically designed for this purpose can damage the equipment and cause premature reaction of the hot melt. If you are unsure of the equipment's ability to process PUR, contact your Nordson representative for assistance.
HM, CA	**CAUTION:** Before using any cleaning or flushing compound on or in the equipment, read and comply with the manufacturer's instructions and the MSDS supplied with the compound. Some cleaning compounds can react unpredictably with hot melt or cold adhesive, resulting in damage to the equipment.
HM	**CAUTION:** Nordson hot melt equipment is factory tested with Nordson Type R fluid that contains polyester adipate plasticizer. Certain hot melt materials can react with Type R fluid and form a solid gum that can clog the equipment. Before using the equipment, confirm that the hot melt is compatible with Type R fluid.

Other Safety Precautions

- Do not use an open flame to heat hot melt system components.
- Check high pressure hoses daily for signs of excessive wear, damage, or leaks.
- Never point a dispensing handgun at yourself or others.
- Suspend dispensing handguns by their proper suspension point.

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First Aid

If molten hot melt comes in contact with your skin:

1. Do NOT attempt to remove the molten hot melt from your skin.
2. Immediately soak the affected area in clean, cold water until the hot melt has cooled.
3. Do NOT attempt to remove the solidified hot melt from your skin.
4. In case of severe burns, treat for shock.
5. Seek expert medical attention immediately. Give the MSDS for the hot melt to the medical personnel providing treatment.

Safety Labels and Tags

Figure 1 illustrates the location of the product safety labels and tags affixed to the equipment. Table 2 provides an illustration of the hazard identification symbols that appear on each safety label and tag, the meaning of the symbol, or the exact wording of any safety message.

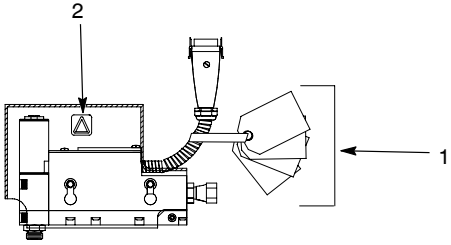

Figure 1: Safety labels and tags

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Table 2 Safety Labels and Tags

Item	Part	Description	
1.	N/A		**WARNING**: Hot Surface! Before touching the gun body, allow the gun to cool, or wear heat−protective gloves. Failure to allow the gun body to cool or to wear heat−protective gloves may cause personal injury.
2.	600137		**WARNING**: Disconnect power and remove system pressure before disassembly or maintenance. Failure to follow these instructions may result in serious personal injury.
3.	243352		**WARNING:** Fire, injury, or equipment damage can result if cleanout materials do not meet the following requirements: a. Minimum flashpoint to be 550°F (288°C). b. Liquid and vapor to be non-toxic at use temperature in equipment. c. Chemical reactions with adhesive and equipment materials must not be violently heat producing. d. Cleanout material must not corrode or otherwise weaken equipment materials.
4.	600103		**CAUTION:** This gun is RTD (resistance temperature detector) controlled. Prior to operation and before changing adhesive, consult instruction manual for changing operating temperature. Failure to follow instructions may result in personal injury or property damage.
5.	243352		**CAUTION:** This equipment is factory tested with Nordson type R fluid containing Polyester Adipate plasticizer. Certain adhesives may react with the type R fluid residue to form solid gum, which can be difficult to remove.To avoid equipment damage, check with adhesive supplier regarding compatibility and cleanout procedure before putting adhesive into the system.

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Description

CAUTION: This gun is intended for use only with the following **DuraBlue** units: D4L, D10L, D16L, D10 and D16. Do not use this gun with any other type of melter.

B900-N and B900SW-N (B900) electric guns are high-speed, all-electric guns designed for the precision placement of hot melt adhesive. The module is an electric solenoid valve with a spring-loaded armature inside the adhesive chamber. The module stroke can be adjusted to change and to balance the adhesive flow between modules. The module coil is AC-powered.

The gun temperature is controlled by a resistance temperature detector (RTD). RTD overtemperature protection is provided by a 246 °C (475 °F) overtemperature thermoswitch.

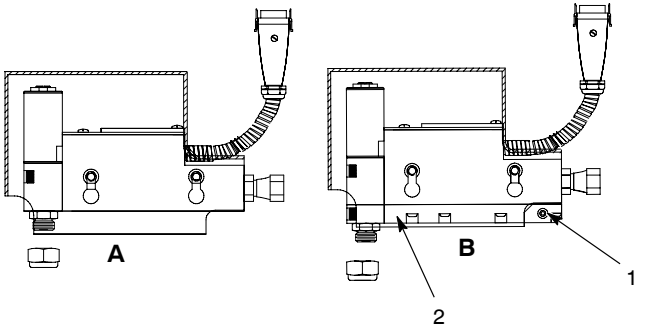

Figure 2: B900-N Extrusion (A) and B900SW-N Swirl Pattern (B) Electric Gun

1. Nozzle air swirl inlet
2. Air manifold for swirl pattern

Note: Items 1 and 2 are on the B900SW–N only.

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Installation

Connect Footswitch and Gun Cordset

1. See Figure 3. Connect the handgun footswitch to the appropriate switch receptacle on the back of the melter.

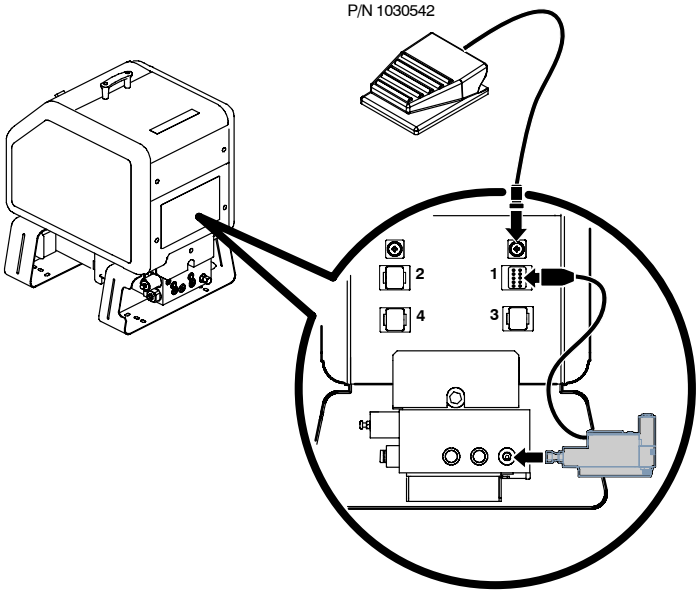

Figure 3: Connect the Gun and Accessories

2. See Figure 3. Connect the fluid inlet gun directly to the manifold. Connect the cordset to the melter. Up to two guns may be used with the melter. Operating parameter 12 or 13 on the DuraBlue melter must be enabled to use this gun. Refer to Table 3 for the procedure.

   NOTE: Connect the gun to Port 1 or Port 2 only. Operating parameters 12 and 13 do not affect Port 3 or Port 4.

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Table 3 DuraBlue Operating Parameters for B900 Gun Set-up

12 Change Hose 1 Output to Electric Gun Activation

Description:	Changes the proportioned 240 VAC current that is provided to the hose 1 heater to a switched 240 VAC current that is used to activate a manifold-mounted electric gun.
Value:	0 (disabled) 1 (enabled)
Resolution:	—
Default Value:	0 (disabled)
Format:	—
Use:	Use only when a Nordson manifold-mounted electric gun is installed and a switching device is connected to the melter's switch receptacle.

13 Change Hose 2 Output to Electric Gun Activation

Description:	Changes the proportioned 240 VAC current that is provided to the hose 1 heater to a switched 240 VAC current that is used to activate a manifold-mounted electric gun.
Value:	0 (disabled) 1 (enabled)
Resolution:	—
Default Value:	0 (disabled)
Format:	—
Use:	Use only when a Nordson manifold-mounted electric gun is installed and a switching device is connected to the melter's switch receptacle.

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Make the Electrical Connections

Make wiring connections at the melter. Refer to the melter or gun driver manual for instructions. The following gun cordset wiring diagram is provided for reference. A 12-pin cordset connector is present on both gun models.

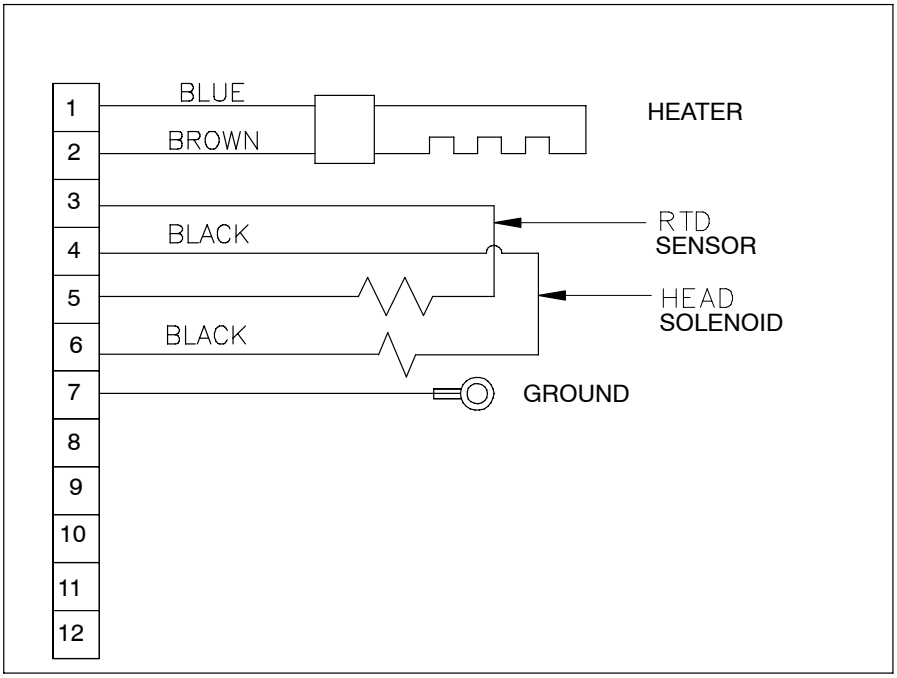

Figure 4: Wiring Diagram of B900 Gun

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Operation

Prepare for Operation

1. Start the melter and allow it to reach operating temperature. Refer to the melter manual as needed.
2. Tighten all hydraulic fittings.
3. Remove the gun nozzles and flush adhesive through the guns. Refer to the melter manual for the flushing procedure.
4. Reinstall the gun nozzles.

Set the Gun Temperature

Use a pyrometer to periodically measure the operating temperature of the gun. Adjust the temperature of the gun at the melter. Refer to melter manual as needed.

Adjust the Module Stroke

Module stroke is the distance the armature must travel to open. The stroke is factory-set at 0.38 mm (0.015 in.), which is recommended for most applications. However, module stroke adjustment may be required if:

- A high-viscosity adhesive is used.
- The flow rate among several modules is not balanced.

Before adjusting the module stroke, keep the following in mind:

- Increasing the stroke distance over 0.61 mm (0.024 in.) results in poor operational reliability.
- Decreasing the stroke distance below 0.18 mm (0.007 in.) can result in poor adhesive flow or cutoff.

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See Figure 5.

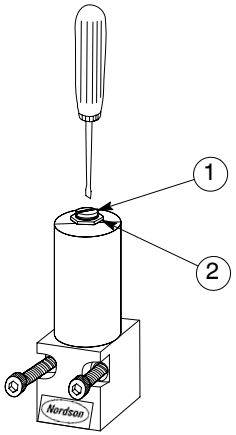

Figure 5: Module stroke adjustment

1. Guide tube
2. Retaining nut

1. Loosen the retaining nut (2) on top of the module.
2. Use a screwdriver to turn the guide tube (1) clockwise until the armature needle stops against the seat.
3. Turn the guide tube one-half turn counterclockwise to adjust the stroke to 0.38 mm (0.015 in.).
4. While holding the guide tube stationary, tighten the retaining nut. Do not overtighten.

Maintenance

WARNING: Allow only personnel with appropriate training and experience to operate or service the equipment. The use of untrained or inexperienced personnel to operate or service the equipment can result in injury, including death, to themselves and others, and damage to the equipment.

Use these procedures to properly maintain the gun. Attempting any other maintenance procedures can result in improper system operation, equipment damage, or personal injury.

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Recommended Maintenance Schedule

Table 4 provides a recommended maintenance schedule. The operating environment will determine how often these steps should be performed.

Table 4 Recommended Maintenance Activities and Schedule

Maintenance Activity	Daily	Monthly	As Needed*
Clean the outside surfaces of the gun	X		
Check for leaks		X	X
Check the modules for foreign material		X	X
Clean nozzles (refer to *Cleaning Nozzles*)			X
Replace the filter (refer to *Replacing a Filter*)		X	X
*Extra maintenance may be required for continuous-duty operations.			

Cleaning Nozzles

Gun nozzles may become clogged when char, a by-product of overheating the hot melt, becomes lodged in the nozzle.

1. Heat the gun to application temperature.
2. Relieve system pressure and disable the gun. Refer to *Safety.*
3. See Figure 6. Remove the nozzles.

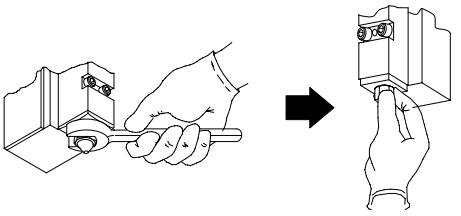

Figure 6: Removing a nozzle

WARNING: Risk of fire. Do not heat Nordson Type R fluid above 245 °C (475 °F). Use only an industrial grade, regulated, electrical heating device that is designed to heat industrial fluids. Personal injury or property damage can result if Type R cleaning fluid is heated with an open flame or in an unregulated heating device.

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CAUTION: Do not use a torch, high heat, or agressive solvents to clean reduced-cavity nozzles. Doing so will damage the nozzle O-ring.

4. Soak the nozzles in Nordson Type R cleaning fluid that has been heated above the melting point of the hot melt.
5. Remove the nozzles from the cleaning fluid.

CAUTION: Use the correct size precision pin probe to clean Nordson nozzles. The use of non-precision or incorrectly sized probes may damage the nozzle. The Nordson nozzle cleaning kit contains a variety of probe sizes.

See Figure 7.

6. See Figure At the outlet of each nozzle, insert a correctly sized cleaning probe.

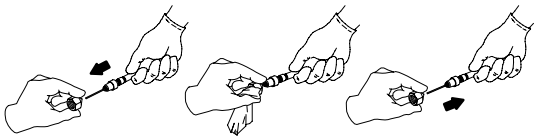

Figure 7: Clean a nozzle

7. With a clean cloth, firmly grip the cleaning probe, then pull the probe out of the nozzle, wiping the probe clean.
8. Reinstall the nozzles. Tighten the nozzles to 4.5 N•m (40 in.-lb).

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Troubleshooting

WARNING: Allow only personnel with appropriate training and experience to operate or service the equipment. The use of untrained or inexperienced personnel to operate or service the equipment can result in injury, including death, to themselves and others, and damage to the equipment.

The following table lists the gun problems that are most likely to occur, the possible causes of each problem, and steps for corrective action.

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Problem	Possible Cause	Corrective Action
1. No adhesive output	Melter pump off	Start the melter pump.
	Melter flow control valve set too low	Increase the system hydraulic pressure (without stalling the motor) by adjusting the flow control valve. If there is no change, inspect the flow control valve for proper operation. Replace the valve as necessary.
	Defective RTD	Unplug the gun cordset and verify that the RTD connections are secure. If the connections are secure, check the continuity of the RTD across the RTD pins on the cordset. If there is no continuity, replace the RTD. Refer to the wiring diagram and resistance data.
	Defective coil	Unplug the gun cord set and check the coil resistance across the coil pins on the cordset. Refer to the wiring diagram and resistance data.
	Module stroke not properly adjusted	Adjust the module stroke. Refer to *Adjust the Module Stroke* under *Installation*.
	Blockage in module	Disassemble and reassemble the module, removing blockages and cleaning parts as needed. Refer to *Replace a Module Component* under *Repair*.
	Clogged nozzle	Clean the nozzle. Refer to *Cleaning Nozzles* under *Maintenance*.
	Clogged melter filter (where used)	Clean or replace. Refer to the melter manual.

Continued...

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Troubleshooting *(contd)*

Problem	Possible Cause	Corrective Action
2. Adhesive output too low	Defective RTD	Unplug the gun cordset and verify that the RTD connections are secure. If the connections are secure, check the continuity of the RTD across the RTD pins on the cordset. If there is no continuity, replace the RTD. Refer to the wiring diagram and resistance data.
	Module stroke not properly adjusted	Adjust the module stroke, Refer to *Adjust the Module Stroke* under *Installation*.
	Blockage in module	Disassemble and reassemble the module, removing blockages and cleaning parts as needed. Refer to *Replace a Module Component* under *Repair*.
	Melter flow control valve set too low	Increase the system hydraulic pressure (without stalling the motor) by adjusting the flow control valve. If there is no change, inspect the flow control valve for proper operation. Replace the valve as necessary.
	Adhesive viscosity too high	Increase the overall system temperature (melter and guns). If there is no change, consult the adhesive vendor. **NOTE:** Do not exceed material specifications.
	Melter temperature too low	Adjust. Refer to the melter manual.
	Incorrect nozzle size	Replace the nozzle with a nozzle that has a larger orifice.
	Clogged nozzle	Clean the nozzle. Refer to *Cleaning Nozzles* under *Maintenance*.
	Clogged melter filter (where used)	Clean or replace. Refer to the melter manual.
	Clog of unknown origin	Purge the system to remove any obstructions.

Continued...

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Problem	Possible Cause	Corrective Action
3. Adhesive output too high	Defective RTD	Unplug the gun cordset and verify that the RTD connections are secure. If the connections are secure, check the continuity of the RTD across the RTD pins on the cordset. If there is no continuity, replace the RTD. Refer to the wiring diagram.
	Module stroke not properly adjusted	Adjust the module stroke, Refer to *Adjust the Module Stroke* under *Installation*.
	Melter flow control valve set too high	Decrease the system hydraulic pressure using the flow control valve. If there is no change, inspect the flow control valve for proper operation. Replace the valve as necessary.
	Adhesive viscosity too low	Decrease the overall system temperature (melter and guns). If there is no change, consult the adhesive vendor.
	Melter temperature too high	Adjust. Refer to the melter manual.
	Incorrect nozzle size	Replace the nozzle with a nozzle that has a smaller orifice.
4. Erratic temperature readings	Incorrect system voltage	Ensure that system voltages match.
	Incorrect component wiring	Check all wires and wire terminations in the hose heater, output connector, and RTD circuit and repair as needed. Refer to the wiring diagram.
	Defective RTD	Unplug the gun cordset and verify that the RTD connections are secure. If the connections are secure, check the continuity of the RTD across the RTD pins on the cordset. If there is no continuity, replace the RTD. Refer to the wiring diagram.

Continued...

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Cleaning Nozzles *(contd)*

Problem	Possible Cause	Corrective Action
5. Gun fails to heat	Poor electrical connections	Check all wires and wire terminations in the output connector and RTD circuit and repair as needed. Refer to the wiring diagram. With the system power off, disconnect the gun cordsets from the melter. Check for heater and RTD continuity through the wires to gun. Also check the heater from wire to ground to ensure that a wire is not grounded. Replace if there is no continuity or if a heater wire is grounded.
	Incorrect system settings	Verify system settings. Refer to the melter manual.
	Defective heater or RTD	Check the resistance of the RTD and heater across the appropriate pins on the gun cordset. If the resistance is not correct, replace the RTD or heater. Refer to the wiring diagram and resistance data.
6. Gun overheats	Incorrect system voltage	Ensure that system voltages match.
	Temperature settings too high	Check the component temperature settings.
	Defective RTD	Unplug the gun cordset and verify that the RTD connections are secure. If the connections are secure, check the continuity and resistance of the RTD across the RTD pins on the cordset. If there is no continuity, replace the RTD. Refer to the wiring diagram.

Continued...

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Problem	Possible Cause	Corrective Action
7. Gun heats slowly	Incorrect system voltage	Ensure that system voltages match.
	Incorrect component wiring	Check all wires and wire terminations in the hose heater, output connector, and RTD circuit and repair as needed. Refer to the wiring diagram.
	Failed heater	Check the resistance of the heater across the appropriate pins on the gun cordset. If the resistance is not correct, replace the heater. Refer to the wiring diagrams and resistance data under *Technical Data* as needed.
8. Module seat leaks	Module stroke not properly adjusted	Adjust the module stroke. Refer to *Adjusting the Module Stroke* under *Installation*.
	Blockage in module	Disassemble and reassemble the module, removing blockages and cleaning parts as needed. Refer to *Replacing a Module Component* under *Repair*.

Continued...

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Cleaning Nozzles *(contd)*

Problem	Possible Cause	Corrective Action
9. Gun will not trigger – adhesive will not dispense	Gun not heating correctly	See above.
	Poor electrical connections	Check all wires and wire terminations in the hose heater, output connector, and RTD circuit. With system power off, disconnect the gun cordsets from the melter. Check the heater and RTD continuity. Also check each heater through wire to ensure the wire is not grounded. Replace the hose if there is no continuity or if a heater wire is grounded.
	Incorrect component wiring	Check all wires and wire terminations in the hose heater, output connector, and RTD circuit and repair as needed. Refer to the wiring diagrams under *Technical Data* as needed.
	Defective coil	Unplug the gun cordset and check the coil resistance across the coil pins on the cordset. Refer to the wiring diagrams and resistance data under *Technical Data* as needed.
	Module stroke not properly adjusted	Adjust the module stroke. Refer to *Adjusting the Module Stroke* under *Installation*.
	Blockage in module or nozzle	Disassemble and reassemble the module, removing blockages and cleaning parts as needed. Refer to *Replacing a Module Component* under *Repair*.
	Adhesive viscosity too high	Increase the overall system temperature (melter, hoses, and guns). If there is no change, consult the adhesive vendor. **NOTE:** Do not exceed material specifications.
	System not up to operating temperature	Allow system to heat. Refer to the melter manual for other related problems.

Continued...

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Problem	Possible Cause	Corrective Action
10. Poor adhesive cutoff	Module stroke not properly adjusted	Adjust the module stroke. Refer to *Adjusting the Module Stroke* under *Installation*.
	Blockage in module	Disassemble and reassemble the module, removing blockages and cleaning parts as needed. Refer to *Replacing a Module Component* under *Repair*.
	Incorrect distance from substrate	Verify mounting of the gun for adequate bead placement.
	Incorrect nozzle type or size	Some nozzles require extra warm-up time or have poor cutoff when the gun is mounted horizontally. Contact a Nordson representative for assistance with the application.
	System pressure incorrect	Adjust pressure up or down until desired performance is achieved.
	Adhesive viscosity too high	Increase the overall system temperature (melter and guns). If there is no change, consult the adhesive vendor. **NOTE:** Do not exceed material specifications.
	Nozzle loose	Verify that the nozzle is secure. Adjust or replace as needed.
11. Excess residue	Nozzle leaking	Clean or replace if necessary.
	Incorrect nozzle type or size	Some nozzles require extra warm-up time or have poor cutoff when the gun is mounted horizontally. Contact a Nordson representative for assistance with the application.
	Nozzle loose	Verify that the nozzle is secure. Adjust or replace as needed.
	Incorrect distance from substrate	Verify mounting of the gun for adequate bead placement.

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Repair

Troubleshooting activities may identify needed repairs. Use these repair procedures as appropriate. Refer to *Parts* for component part numbers.

WARNING: Allow only personnel with appropriate training and experience to operate or service the equipment. The use of untrained or inexperienced personnel to operate or service the equipment can result in injury, including death, to themselves and others, and damage to the equipment.

WARNING: Read and follow all procedures as detailed in the *Safety* section before engaging in any repairs. Falure to do so can result in injury, including death, to themselves and others, and damage the equipment.

CAUTION: Always disconnect the gun electrical connector when performing maintenance to prevent accidental triggering.

Before proceeding with any maintenance procedure:

1. Completely relieve the system hydraulic pressure.
2. Verify that the B900 gun is positioned over a waste receptacle.
3. Disable the gun by turning off or disconnecting the gun from the melter.

Replace a Module

Follow this procedure to replace a complete module. To replace a module component that requires complete disassembly and reassembly of the module, refer to *Replace a Module Component*. To replace only the coil and housing assembly, refer to *Replace the Coil and Housing Assembly.* Refer to *Parts* for replacement module part numbers.

Remove a Module

See Figure 8.

1. De-energize the system and disable the guns. Refer to *Safety*.
2. Remove the nozzle (5).
3. Remove the screws (4) that secure the module to the manifold. If the module is tightly clamped between other modules, loosen the adjacent modules.

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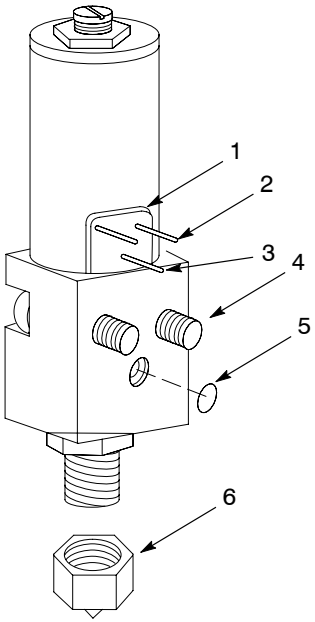

Figure 8: Module replacement

1. Coil pin seal
2. Coil pins
3. Ground pin
4. Module screw
5. O-ring
6. Nozzle

4. Grasp the module at the top and bottom and carefully pull the module away from the gun to disconnect the coil pins (2) and ground pin (3). If the module resists, lightly tap the coil until the module breaks free.

   CAUTION: Do not rotate module. Damage to pins may result.

5. Wipe off dripping adhesive from the manifold face. Do not allow the adhesive to drip into the electrical connector.

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Install a Module

See Figure 8.

1. Ensure that the coil pin seal (1) is in place.
2. Lubricate the O-ring (5) with Parker Hi-Temp lubricant (P/N 900493) and ensure that it is in good condition and in place.
3. Engage the coil pins (2) in the connector block on the gun manifold and secure the module with the screws (4) removed previously.
4. Energize the system and allow the module to warm up for 10 minutes.
5. After the module is at operating temperature, adjust the module stroke as needed. Refer to *Adjust the Module Stroke* under *Installation*.

Replace a Coil and Housing Assembly

Follow this procedure to replace only the coil and housing assembly on a module. To replace a complete module, refer to *Replace a Module*. To replace a module component that requires complete disassembly and reassembly of the module, refer to *Replace a Module Component*. Refer to *Parts* for coil and housing kit part numbers.

See Figure 9.

1. De-energize the system and disable the guns. Refer to *Safety*.
2. Remove the module. Refer to *Remove a Module* under *Replace a Module.*
3. Remove the retaining nut (1).
4. Pull coil and housing assembly (2) away from the module body (3), sliding it up the guide tube (4).
5. Install the new coil and housing assembly in the module body, slipping it over the guide tube.
6. Install the retaining nut.
7. Install the module on the gun. Refer to *Install a Module* under *Replace a Module*.

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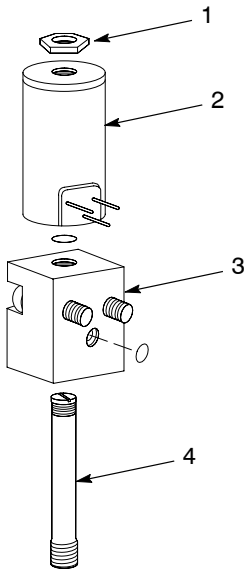

Figure 9: Coil replacement

1. Retaining nut
2. Coil and housing assembly
3. Module body
4. Guide tube

Replace a Module Component

Follow these procedures to replace (or clean) a module component that requires complete disassembly and reassembly of the module. To replace a complete module, refer to *Replace a Module* . To replace only the coil and housing assembly, refer to *Replace the Coil and Housing Assembly*. Refer to *Parts* for module rebuild kit part numbers.

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Disassemble the Module

See Figure 10.

1. Heat the system to application temperature. The adhesive in the module must be molten for this procedure.
2. De-energize the system and disable the gun. Refer to *Safety.*
3. Remove the module on which a component is to be replaced. Refer to *Remove a Module* under *Replace a Module.*
4. Loosen the retaining nut (1).

   CAUTION: Failure to back the armature off of the seat may damage both the seat and armature when the seat is reinstalled.

5. To back the armature off of the seat, turn the coil end of the guide tube counterclockwise until it stops turning.
6. Pull the coil and housing (2) from module body (6).
7. Remove the seat (12), armature (10), and spring (9).
8. Clamp the module body in a vice.

   CAUTION: Do not use pliers to turn the guide tube. Pliers will damage the fine threads and deform the tube wall.

9. With a screwdriver, turn the guide tube (8) clockwise until it comes loose (about 12 turns).
10. Push down on the top of the guide tube until it can be pulled free from the bottom of the module body.
11. As needed, clean the module components by placing them in a container of Nordson Type R fluid heated to 245 °C (475 °F). Allow the components to soak for 10 minutes, then remove them and blow off excess residue with an air gun or wipe them with a shop rag.

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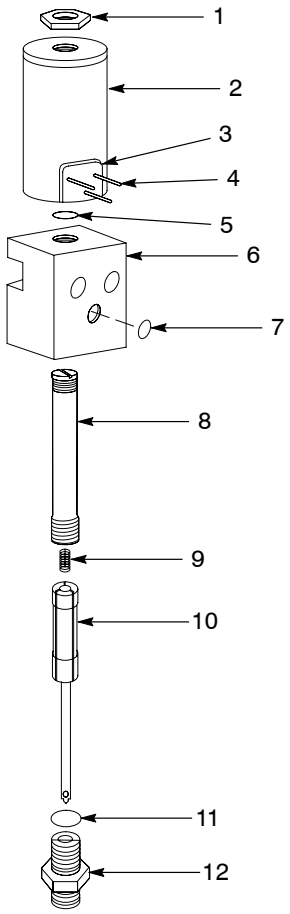

Figure 10: Module disassembly

1. Retaining nut
2. Coil and housing assembly
3. Coil pin seal
4. Coil pin
5. O-ring
6. Module body
7. O-ring
8. Guide tube
9. Spring
10. Armature
11. O-ring
12. Seat

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Reassemble the Module

See Figure 10.

1. Lubricate a new O-ring (5) with Parker Hi-Temp lubricant (P/N 900493) and install it in the groove in the top of the module body.

   CAUTION: Failure to screw the guide tube fully into the module body will result in damage to the armature and seat due to lack of stroke clearance.

2. Lubricate the top threads of the guide tube (8) with high temp silicone. Carefully pass the top threads through the O-ring by rotating it clockwise. Push the guide tube through until the threads engage, and screw the guide tube fully into the module body.
3. Install the spring (9), armature (10), O-ring (11), and seat (12). Lubricate the O-ring Parker Hi-Temp lubricant (P/N 900493).
4. Install the coil and housing assembly (2) on the module body, slipping it over the guide tube. Note the location of the coil pins (4).
5. Install the retaining nut (1).
6. Lubricate and install the module body O-ring (7) with Parker Hi-Temp lubricant (P/N 900493). Replace the O-ring if the existing one is worn or damaged.
7. Ensure that the coil pin seal (3) is in place.
8. Install the module on the gun. Refer to *Install a Module* under *Replacing a Module*.

Replace the Coil Connector

Follow this procedure to replace the electrical connector (terminal block) for the module coil. Refer to *Parts* for the coil connector kit part number.

1. De-energize the system and disable the gun. Refer to *Safety.*
2. Remove the module from the gun. Refer to *Remove a Module* under *Replace a Module*.

See Figure 11.

3. Place a shop cloth over the coil connector to prevent adhesive from getting into the connector. Replace the coil seal if it becomes damaged; otherwise, contamination of the connector will result.
4. Remove the manifold cover and gasket. If the gasket is broken, replace it.
5. Loosen the connector socket screws and remove the wires.

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6. Remove the connector mounting screws and then remove the connector.
7. If necessary, cut the connector wires back to the insulation and re-strip them to 4 mm (0.19 in.).
8. Insert the connector wires into the screw-clamp sockets and tighten the screws.
9. Press the connector into the slot in the manifold and reinstall the mounting screws.

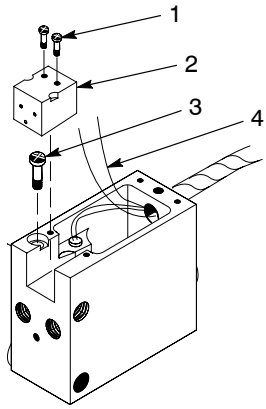

Figure 11: Coil connector replacement

1. Socket screw
2. Coil connector
3. Mounting screw
4. Wires

Note:

10. Check the screw-clamp terminations and tighten as necessary.
11. Reinstall the gasket and manifold cover plate.

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Replace a Heater

Follow this procedure to replace a heater. Refer to *Parts* for heater replacement kit part numbers.

1. De-energize the system and disable the gun. Refer to *Safety*.

See Figure 12.

2. Remove the manifold cover and gasket, and disconnect the heater wires (1).
3. Gently push the old heater (2) out of the manifold by inserting a rod in the heater bore on the back of the manifold (3).
4. Cut the new heater wires to match the length of the old heater wires.
5. Strip the new heater wires to 6 mm (0.250 in.).
6. Apply heater lubricant (P/N 165415) to the new heater and slide it into the heater bore.
7. Connect the heater wires to the terminal block.

   NOTE: Refer to *Technical Data* at the end of this manual for wiring diagrams.

8. Install the gasket and manifold cover.

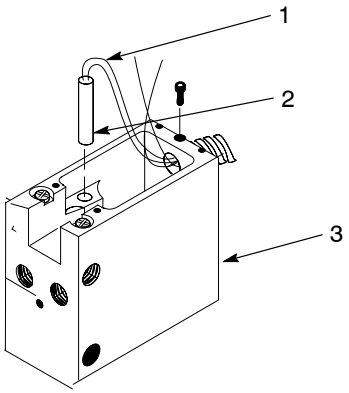

Figure 12: Heater replacement

1. Heater wires
2. Heater
3. Manifold

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Replace an RTD

To ensure proper temperature control, replace an RTD as a complete unit, with soldered gold contact pins and shielded wires. Refer to *Parts* for the RTD replacement kit part number.

1. Disconnect and lock out electrical power to the melter system.
2. Disconnect the gun electrical connector.
3. Access the gun electrical cavity.

See Figure 13.

4. Cut the leads of the defective RTD (1) 25 mm (1 in.) from the RTD element (2).
5. Remove and discard the defective RTD element.

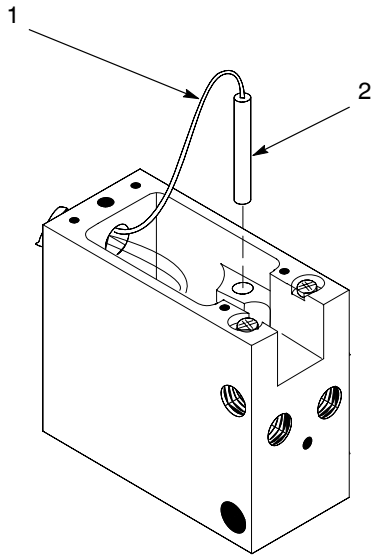

Figure 13: RTD Replacement

1. RTD lead
2. RTD

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Replace an RTD *(contd)*

See Figure 14.

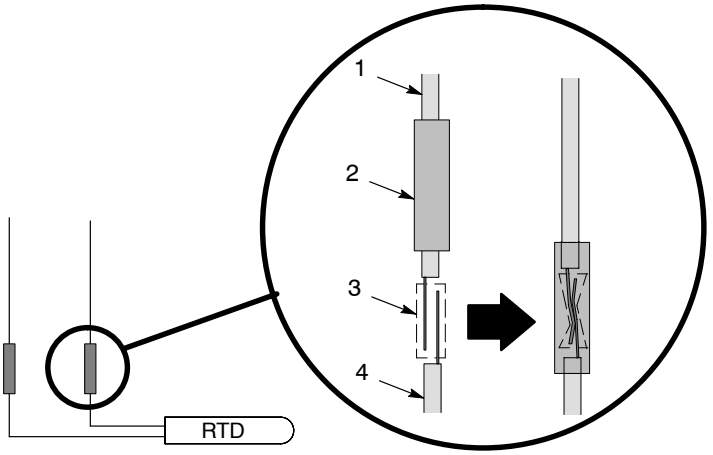

Figure 14: Splicing RTD leads

1. Old RTD lead
2. Heat shrink tubing
3. Parallel wire splice
4. New RTD lead

6. Strip about 6 mm (0.25 in.) of insulation from the old RTD leads.
7. Cut the heat shrink tubing from the kit in half (into two 25 mm [1 in.] pieces) and slide a piece of heat shrink tubing onto each of the old RTD leads.
8. Cut the new RTD leads about 50–76 mm (2–3 in.) from the RTD element and strip about 6 mm (0.25 in.) of the insulation from the new RTD leads.
9. Use a parallel wire splice to crimp the exposed wire of one old and one new RTD lead together. Repeat for the other old and new RTD leads.
10. Slide the heat shrink tubing over the splices and heat it to shrink the tubing around the splices.
11. Install the new RTD in the manifold and apply heat sink compound (P/N 900298).

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12. If the knockout hole was used to remove the old RTD, seal it with a silicone sealant (P/N 900411).
13. Route the RTD wires through the armored conduit and back shell. Push the gold pins into positions 4 and 5 on the back shell. Pull the pins into their final positions such that they click into place.
14. Reassemble the conduit and tighten the set screws. On water-resistant guns, seal the set screws with a silicone sealant (P/N 1019259).
15. Inspect the gasket and replace if damaged.
16. Install the gasket and manifold cover.

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Replace a Nozzle

Follow this procedure to replace a nozzle. The adhesive in the system must be heated to application temperature before a nozzle is removed.

1. Heat the system to application temperature.
2. Relieve system pressure and disable the gun. Refer to *Safety*.

See Figure 15.

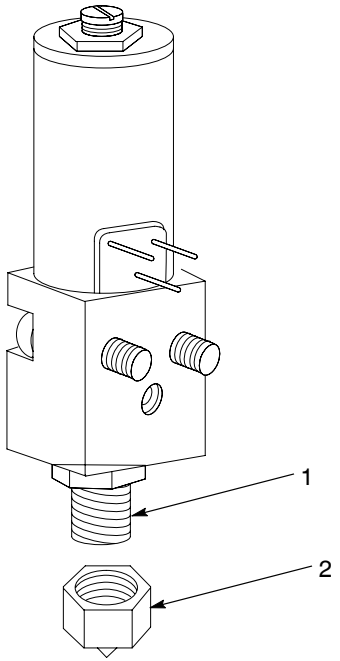

Figure 15: Nozzle replacement

1. Module seat
2. Nozzle

3. Use a 17 mm ($^{11}/_{16}$ in.) wrench to hold the module seat (1) stationary, and use a 14 mm ($^{9}/_{16}$ in.) wrench to remove the nozzle (2).
4. Clean adhesive char from the face of the module seat.
5. Install the new nozzle.

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Using the Illustrated Parts Lists

To order parts, call the Nordson Customer Service Center or your local Nordson representative. Use these four-column parts lists, and the accompanying illustrations, to describe and locate parts correctly. The following chart provides guidance for reading the parts lists.

The number in the *Item* column corresponds to the circled item number in the parts list illustration. A dash in this column indicates that the item is an assembly.

The number in the *Part* column is the Nordson part number you can use to order the part. A series of dashes indicates that the part is not saleable. In this case, you must order either the assembly in which the part is used or a service kit that includes the part.

The *Description* column describes the part and sometimes includes dimensions or specifications.

The *Quantity* column tells you how many of the part is used to manufacture the assembly shown in the parts list illustration. A dash in this column indicates that the amount of the item required in the assembly is not quantifiable.

Item	Part	Description	Quantity
		•	
		• •	

NOTE A:
B:
NS: Not Shown

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B900-N Gun Parts

See Figure 16.

Item	Part	Description	Quantity
—	1031733	Gun, B900-N, 230V, DuraBlue	—
1	1031890	• Benchmount manifold	1
2	1029816	• Heater service kit	1
3	1032416	• Module assembly	1
4	342272	• Tube fitting, $^{3}/_{8}$ X $^{9}/_{16}$-18, str.thd.	1
5	1027970	• Single plate cover	1
6	1031769	• Manifold plate cover	1
7	1028204	• Screw, self tap, $^{6}/_{32}$ X $^{5}/_{16}$ UNC	7
8	1032909	• RTD service kit	1
9	981101	• Screw, socket set, 10-32 X .187, cmp, zn	1
10	1029732	• Connecting block, 3-pin	1
11	1019009	• Insulator, .75 OD x .328 ID x .25	2
12	1030521	• Heat shield	1
13	1031582	• Screw, flt. head, 10-32 X $^{5}/_{8}$, blk	2
14	1026684	• Nozzle, straight, .020/.300	1
15	1035722	• Cordset	1
16	939586	• Connector, plastic	1
17	981975	• Scr, skt cap, 10–32 X 1.125	2

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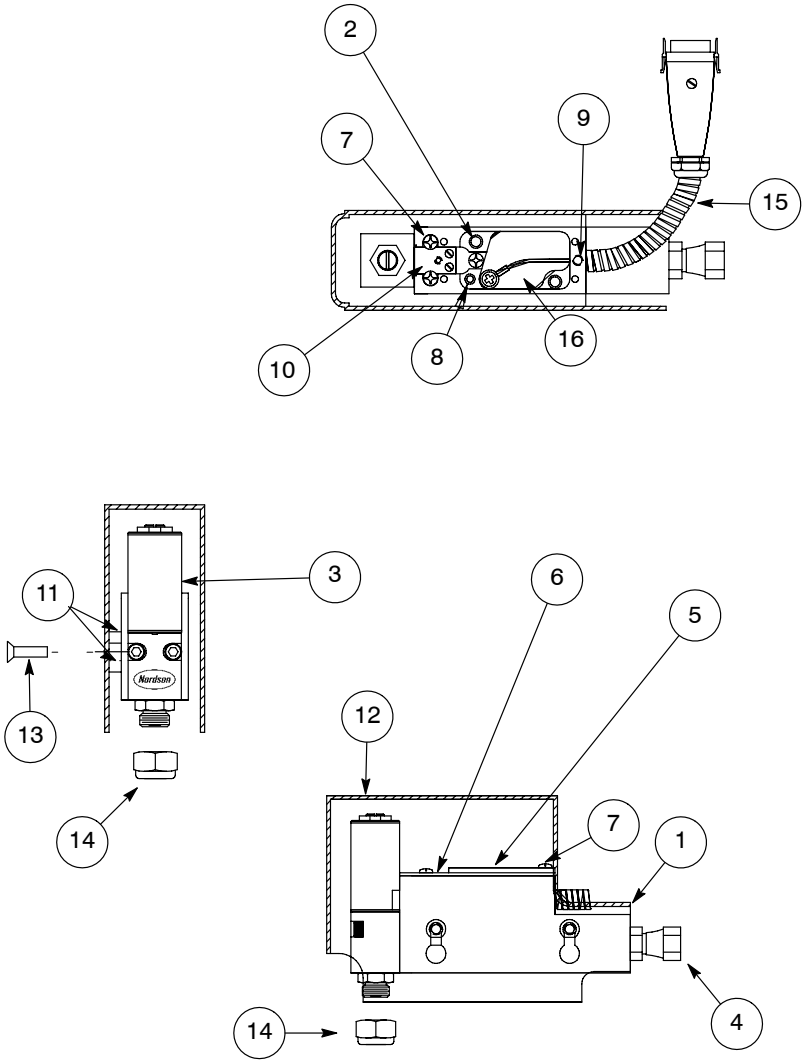

Figure 16: Exploded View of B900-N Gun

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B900SW-N Gun Parts

See Figure 17.

Item	Part	Description	Quantity
—	1031734	Gun, B900SW-N, 230V, DuraBlue	—
1	1031890	• Benchmount manifold	1
2	1029816	• Heater service kit	1
3	1032618	• Module assembly	1
4	342272	• Tube fitting, $^{3}/_{8}$ X $^{9}/_{16}$-18, str.thd.	1
5	1027970	• Single plate cover	1
6	1031769	• Manifold plate cover	1
7	1028204	• Screw, self tap, $^{6}/_{32}$ X $^{5}/_{16}$ UNC	7
8	1032909	• RTD service kit	1
9	981101	• Screw, socket set, 10-32 X .187, cmp, zn	1
10	1029732	• Connecting block, 3-pin	1
11	1019009	• Insulator, .75 OD X .328 ID X .25	2
12	1028208	• Hose clamp, $^{1}/_{4}$ in.	1
13	971607	• Connector, 10-32 X $^{1}/_{4}$ in.	1
14	1020490	• Screw, self tap, panhd, 6-32 X $^{1}/_{2}$ in., zn	8
15	1032114	• Air manifold	1
16	1035722	• Cordset	1
17	1028910	• Tubing, $^{1}/_{4}$ in. OD X $^{1}/_{8}$ in. ID	1
18	1037526	• Screw, soc, button, 10-32 X $^{3}/_{16}$	1
19	1030521	• Heat shield	1
20	1031582	• Screw, Flthd, 10-32 X $^{5}/_{16}$, bld	2
21	100728	• CFDisk-B-025-6-ST-CW	1
22	939586	• Connector, plastic	1

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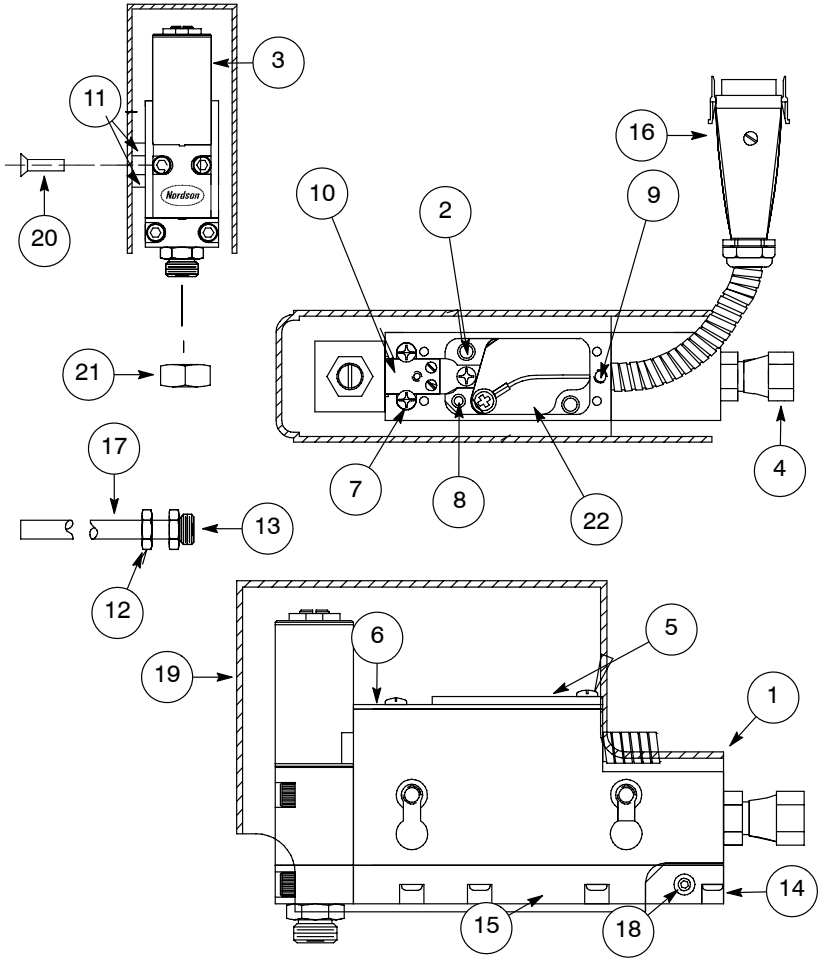

Figure 17: Exploded View of B900SW-N Gun

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Replacement Modules for B900 Guns

See Figure 18.

Table 5 Module and Module Parts

Item	Part	Part	Quantity	Note
1	1032618	Module, B900SW-N, 240 VAC	—	A
	1032416	Module, B900-N, 240 VAC	—	A
2	984444	Nut, lock, $^{3}/_{8}$-32 x 0.093	1	
3	1029801	Kit, coil and housing assembly, 240 V	1	
4	1027905	Seal, coil pin	1	B
5	940073	O-ring, Viton, 0.145 ID x 0.070 W in.	1	B
6	1041206	Plate, locking, seat	1	C
7	982760	Screw, socket, cap, 6-32 x 0.375 in.	2	C

NOTE A: Order this part for a complete replacement module.
B: This part is included in the coil and housing assembly kit (item 3).
C: Used with the B900SW-N only.

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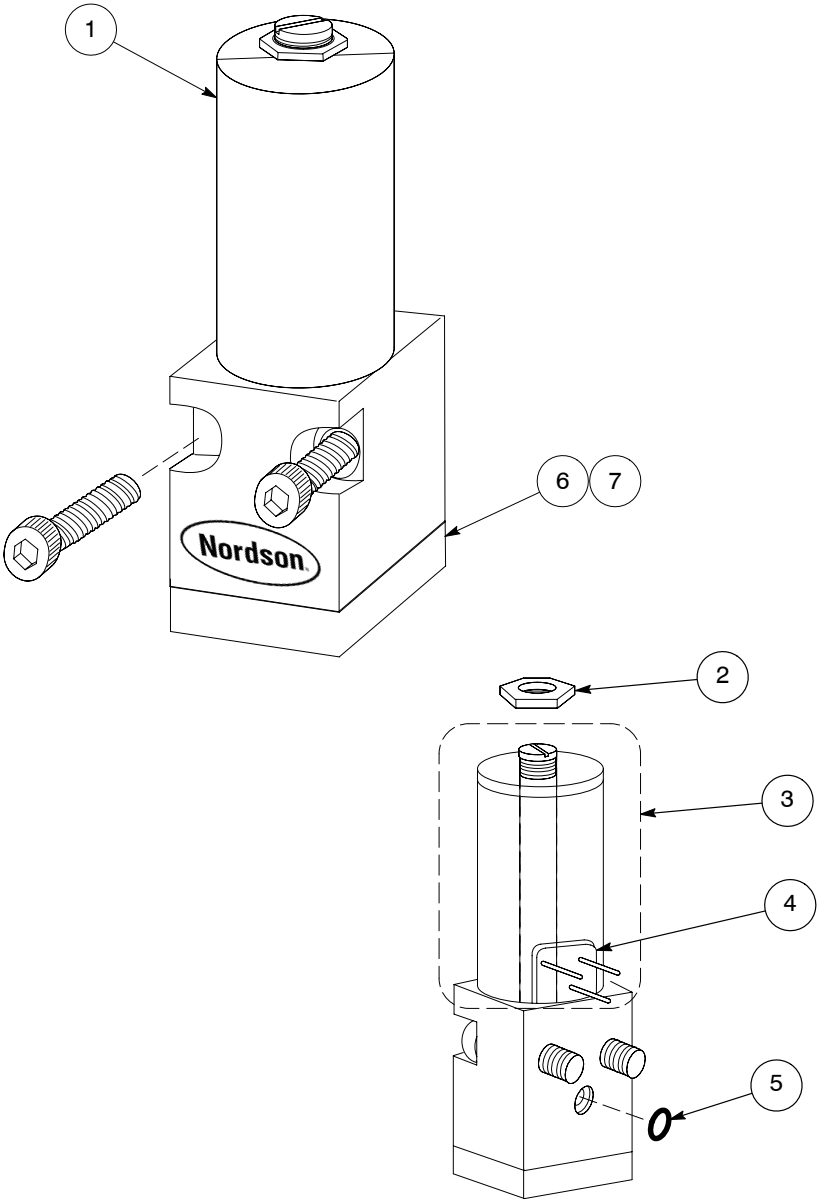

Figure 18: Module parts

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Module Rebuild Kits

See Figure 19.

Table 6 Rebuild Kit and Component Part Numbers

Item	Part	Description	Quantity
—	1029811	Kit, module body	—
1	984444	Nut, lock, $^3/_8$-32 x 0.093	1
2	1027905	Seal, coil	1
3	940121	O-ring, Viton, 0.364 ID x 0.070 W in.	1
4	- - - - - -	Body, module	1
5	981975	Screw, socket, cap, 10-32 x 1.125 in.	2
6	940073	O-ring, Viton, 0.145 ID x 0.070 W in.	1
—	1033136	Kit, guide tube	—
1	984444	Nut, lock, $^3/_8$-32 x 0.093	1
2	1027905	Seal, coil	1
3	940121	O-ring, Viton, 0.364 ID x 0.070 W in.	1
6	940073	O-ring, Viton, 0.145 ID x 0.070 W in.	1
7	- - - - - -	Tube, guide	1
10	940133	O-ring, Viton, 0.426 ID x 0.070 W in.	1
—	1029809	Kit, armature and seat, AC	—
1	984444	Nut, lock, $^3/_8$-32 x 0.093	1
2	1027905	Seal, coil	1
3	940121	O-ring, Viton, 0.364 ID x 0.070 W in.	1
5	981975	Screw, socket, cap, 10-32 x 1.125 in.	2
6	940073	O-ring, Viton, 0.145 ID x 0.070 W in.	1
8	987073	Spring, compression, 0.75 x 0.13 x 0.02 in.	1
9	- - - - - -	Armature	1
10	940133	O-ring, Viton, 0.426 ID x 0.070 W in.	1
11	- - - - - -	Seat, with insert	1
—	1029812	Kit, O-rings and spring, AC	—
3	940121	O-ring, Viton, 0.364 ID x 0.070 W in.	4
6	940073	O-ring, Viton, 0.145 ID x 0.070 W in.	4
8	987073	Spring, compression, 0.75 x 0.13 x 0.02 in.	4
10	940133	O-ring, Viton, 0.426 ID x 0.070 W in.	4

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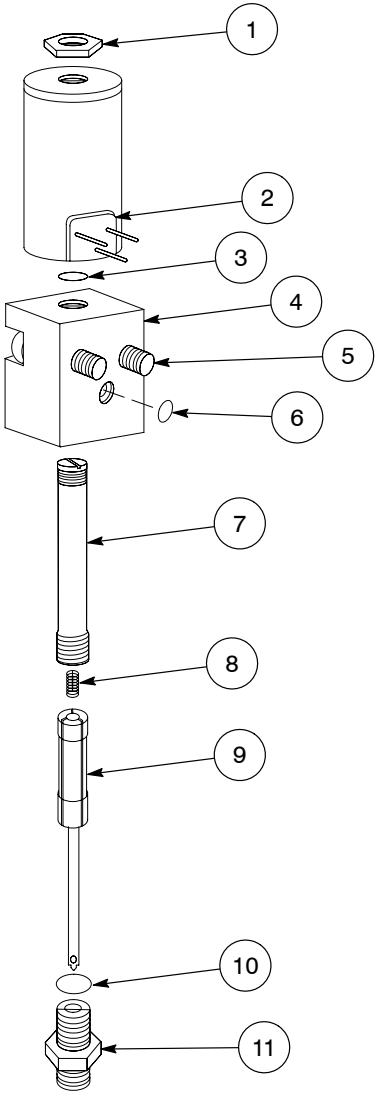

Figure 19: Module rebuild kit parts (B900-N shown)

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Lubricants and Sealants

Part Number	Description
900493	Parker Hi-Temp lubricant
900411	Sealant, RTV
165415	Heater lubricant
900298	Heat sink compound
1019259	Silicone sealant (waterwash units only)

Technical Data

Specifications

Parameter	Specification
Source voltage	240 VAC
Module coil voltage	240 VAC
Module coil wattage	90 W
Heater wattage	150 W
Hose connections	Male, 37° JIC, in no. 6, 8 and 10
Adhesive viscosity	Maximum 25,000 centipoise **NOTE:** For higher adhesive viscosities, consult your Nordson representative.
Operating pressure	3.4–40 bar (50–600 psi)
Operating Temperature Range	40–230 °C (100–450 °F)

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Gun Heater Resistance

Voltage	Heater Quantity	Heater Wattage	Ohms
240	1	150	369–399

Module Coil Resistance

Coil Voltage	Ohms
240	285–335

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Resistance Values

Unless otherwise specified, resistance values are measured at 20 °C + 5 °C (68 °F + 10 °F).

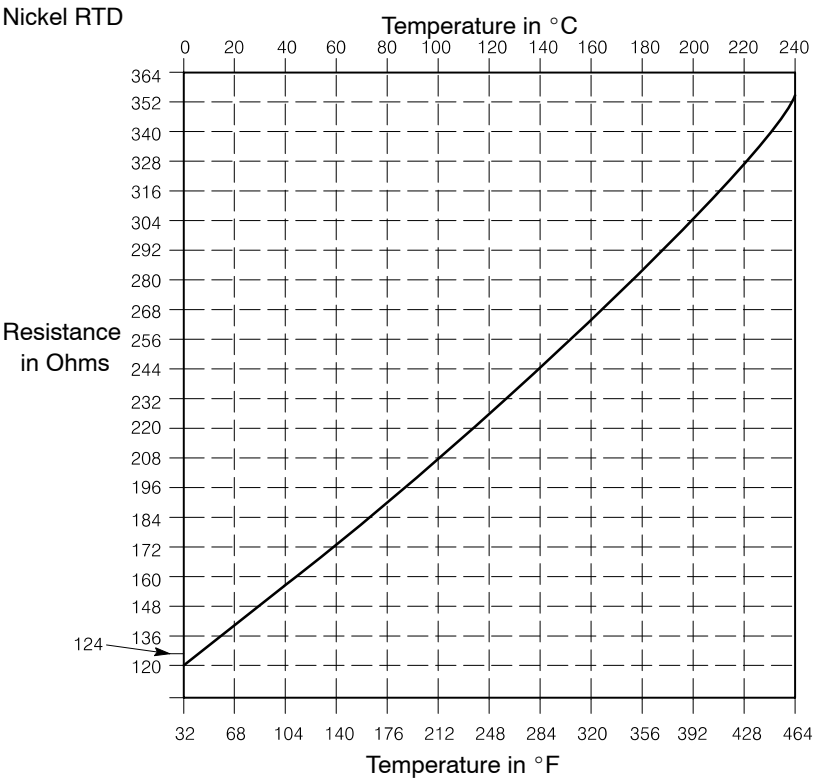

Figure 20: RTD resistance vs. temperature

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